

PUNA COMMUNITY DEVELOPMENT PLAN



MANAGING GROWTH: 3.6 Energy Sustainability					
<u>Action 3.6.3.A</u>	Action Status	Lead Partners	Supporting Partners	Timeframe	Supportive Actions
Apply LEED standards for public buildings, with a minimum goal of silver level		Building	County Council	2008-2012	
<u>Action 3.6.3.B</u>	Action Status	Lead Partners	Supporting Partners	Timeframe	Supportive Actions
Investigate ground-water cooling for public buildings		DBEDT	Public Works	2008-2012	
<u>Action 3.6.3.C</u>	Action Status	Lead Partners	Supporting Partners	Timeframe	Supportive Actions
Require energy efficiency standards for larger residences	Amendment Proposed	Building	County Council	2008-2017	
<u>Action 3.6.3.D</u>	Action Status	Lead Partners	Supporting Partners	Timeframe	Supportive Actions
Incorporate energy-efficient features into the construction of lower-cost homes with the use of public subsidies		OHCD, HHFDC	PUC	2008-2030	
<u>Action 3.6.3.E</u>	Action Status	Lead Partners	Supporting Partners	Timeframe	Supportive Actions
Establish a Renewable Energy Research & Development fund with UH-Hilo		UH Hilo	DBEDT Research & Development		
<u>Action 3.6.3.F</u>	Action Status	Lead Partners	Supporting Partners	Timeframe	Supportive Actions
Apply the PUC Public Benefits Fund to retrofit dwellings for alternative energy, with sliding scale to reach low-income households		Public Utilities Comm.	County Council OHCD	2008-2030	

<u>Action 3.6.3.G</u>	Action Status	Lead Partners	Supporting Partners	Timeframe	Supportive Actions
Negotiate a direct use of geothermal agreement for agricultural uses as part of any expansion of the capacity of the Puna Geothermal Venture plant		HELCO Public Utilities Comm.	Research & Development	2008-2012	3.2.3.M 3.6.3.I (3)
<u>Action 3.6.3.H</u>	Action Status	Lead Partners	Supporting Partners	Timeframe	Supportive Actions
Promote biomass energy and fuel production using wood chips from exotic trees		Public Utilities Comm.	DBEDT Research & Development	2008-2030	3.2.3.M
<u>Action 3.6.3.I (1)</u>	Action Status	Lead Partners	Supporting Partners	Timeframe	Supportive Actions
Pursue new renewable energy sources (OTEC, wave energy, solar capture) as technology advances		Public Utilities Comm.	DBEDT Research & Development	2013-2030	3.2.3.M 3.6.3.I (2) 3.6.3.I (3)
<u>Action 3.6.3.I (2)</u>	Action Status	Lead Partners	Supporting Partners	Timeframe	Supportive Actions
Pursue an ocean energy or enterprise subzone		Research & Development	DBEDT Planning	2013-2017	3.6.3.I (1)
<u>Action 3.6.3.I (3)</u>	Action Status	Lead Partners	Supporting Partners	Timeframe	Supportive Actions
Pursue other applications besides energy capture (e.g., aquaculture and agricultural product washing)		Research & Development	DBEDT	2013-2030	3.6.3.I (1)

PUNA COMMUNITY DEVELOPMENT PLAN



***The following pages contain supplemental information for each action of the
Puna Community Development Plan***

MANAGING GROWTH: 3.6 Energy Sustainability



Action 3.6.3.A

Apply Leadership in Energy and Environmental Design (LEED) standards for public buildings, with a minimum goal of silver level.

Action Status:

Timeframe: 2008-2012

Start Date:

Completion Date:

Cost:

Funding Source:

Action Update:

Supportive/Dependent Actions:

Lead Solution Partner:

County of Hawai'i Department of Public Works
Building Division
101 Pauahi Street, Suite 7
Hilo, HI 96720
808 961-8331

Supporting Partners:

Hawai'i County Council
25 Aupuni Street
Hilo, HI 96720
808 961-8225

Additional Partners:

Notes/Lessons Learned:

Puna CDP Goals 3.6.1

- a. Puna has made significant progress towards achieving energy self-sufficiency by 2020.
- c. Puna lowers its dependence on fossil fuel as an energy source, becoming a demonstration area for alternative sources, systems and fuels.

Puna CDP Objectives 3.6.2

- b. Employ energy-efficient design standards for public building and residential development, including ventilation and cooling.

Reference Documents:

Reference Documents	Page #
Puna CDP: Action 3.6.3.A	pp. 3-19, 3-20
WG Report – Alternative Energy	pp. 1-3 (all)
Working Paper No. 3	pp. 4,5,18-19, 29-31
*Note: reference documents are not limited to the above noted pages.	

MANAGING GROWTH: 3.6 Energy Sustainability



Action 3.6.3.B

Investigate the use of ground-water cooling systems for public buildings.

Action Status:

Timeframe: 2008-2012

Start Date:

Completion Date:

Cost:

Funding Source:

Action Update:

Supportive/Dependent Actions:

Lead Solution Partner:

State of Hawai'i Department of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, HI 96813
808 586-2423

Supporting Partners:

County of Hawai'i Department of Public Works
101 Pauahi Street, Suite 7
Hilo, HI 96720
808 961-8321

Additional Partners:

Notes/Lessons Learned:

Puna CDP Goals 3.6.1

- a. Puna has made significant progress towards achieving energy self-sufficiency by 2020.
- c. Puna lowers its dependence on fossil fuel as an energy source, becoming a demonstration area for alternative sources, systems and fuels.

Puna CDP Objectives 3.6.2

- b. Employ energy-efficient design standards for public building and residential development, including ventilation and cooling.

Reference Documents:

Reference Documents	Page #
Puna CDP: Action 3.6.3.B	pp. 3-19, 3-20
WG Report – Alternative Energy	pp. all
Working Paper No. 3	pp. 4-5
*Note: reference documents are not limited to the above noted pages.	

MANAGING GROWTH: 3.6 Energy Sustainability

Amendment
Proposed

Action 3.6.3.C

Require energy efficiency standards for larger residences. Applicable standards might include better insulation for the outer walls, low-emissivity windows and doors, reduction of roof heat gain, and use of energy-efficient appliances.

Action Status: Amendment Proposed

Timeframe: 2008-2017

Start Date:

Completion Date:

Cost:

Funding Source:

Action Update:

Proposed Amendment: Amend as follows: **Proposed By:** Bill 194

[~~Require~~] Promote energy efficiency standards for larger residences. Applicable standards might include better insulation for the outer walls, low-emissivity windows and doors, reduction of roof heat gain, and use of energy-efficient appliances.

Supportive/Dependent Actions:

Lead Solution Partner:

County of Hawai'i Department of Public Works
Building Division
101 Pauahi Street, Suite 7
Hilo, HI 96720
808 961-8331

Supporting Partners:

Hawai'i County Council
25 Aupuni Street

Hilo, HI 96720
808 961-8225

Additional Partners:

Notes/Lessons Learned:

Puna CDP Goals 3.6.1

- a. Puna has made significant progress towards achieving energy self-sufficiency by 2020.

Puna CDP Objectives 3.6.2

- b. Employ energy-efficient design standards for public building and residential development, including ventilation and cooling.

Reference Documents:

Reference Documents	Page #
Puna CDP: Action 3.6.3.C	pp. 3-19, 3-20
WG Report – Alternative Energy	all
Working Paper No. 3	pp. 4-5
*Note: reference documents are not limited to the above noted pages.	

MANAGING GROWTH: 3.6 Energy Sustainability



Action 3.6.3.D

Incorporate energy-efficient features into the construction of lower-cost homes with the use of public subsidies.

Action Status:

Timeframe: 2008-2030

Start Date:

Completion Date:

Cost:

Funding Source:

Action Update:

Supportive/Dependent Actions:

Lead Solution Partner:

County of Hawai'i Office of Housing &
Community Development
50 Wailuku Drive
Hilo, HI 96720
808 961-8379

Hawai'i Housing Finance & Development
Corporation
677 Queen Street
Honolulu, HI 96813
808 587-0597

Supporting Partners:

State of Hawai'i Public Utilities Commission
465 South King Street #103
Honolulu, HI 96813
808 586-2020

Additional Partners:

Notes/Lessons Learned:

Puna CDP Goals 3.6.1

- a. Puna has made significant progress towards achieving energy self-sufficiency by 2020.

Puna CDP Objectives 3.6.2

- b. Employ energy-efficient design standards for public building and residential development, including ventilation and cooling.

Reference Documents:

Reference Documents	Page #
Puna CDP: Action 3.6.3.D	pp. 3-1, 3-20
WG Report – Alternative Energy	pp. 1-3 (all)
Working Paper No. 3	pp. 4-5
*Note: reference documents are not limited to the above noted pages.	

MANAGING GROWTH: 3.6 Energy Sustainability



Action 3.6.3.E

Establish a Renewable Energy Research & Development fund with University of Hawai'i at Hilo.

Action Status:

Timeframe: 2008-2030

Start Date:

Completion Date:

Cost:

Funding Source:

Action Update:

Supportive/Dependent Actions:

Lead Solution Partner:

University of Hawai'i at Hilo
200 West Kawili Street
Hilo, HI 96720
808 974-7414

Supporting Partners:

State Department of Business, Economic Development & Tourism P.O. Box 2359 Honolulu, HI 96813 808 586-2423	County of Hawai'i Research & Development 25 Aupuni Street Hilo, HI 961-8366
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Additional Partners:

Notes/Lessons Learned:

Puna CDP Goals 3.6.1

- a. Puna has made significant progress towards achieving energy self-sufficiency by 2020.

Puna CDP Objectives 3.6.2

None

Reference Documents:

Reference Documents	Page #
Puna CDP: Action 3.6.3.E	pp. 3-19, 3-20
WG Report – Alternative Energy	all
Working Paper No. 3	pp. 4-5,36
*Note: reference documents are not limited to the above noted pages.	

MANAGING GROWTH: 3.6 Energy Sustainability



Action 3.6.3.F

Apply the Public Utilities Commission Public Benefits Fund to incentives to homeowners and landlords to retrofit dwellings for alternative energy devices and systems, using a sliding scale to provide greater subsidies to low-income households. The County may augment this with matching grants and low interest loans.

Action Status:

Timeframe: 2008-2030

Start Date:

Completion Date:

Cost:

Funding Source:

Action Update:

Supportive/Dependent Actions:

Lead Solution Partner:

State of Hawai'i Public Utilities Commission
465 South King Street #103
Honolulu, HI 96813
808 586-2020

Supporting Partners:

Hawai'i County Council

25 Aupuni Street
Hilo, HI 96720
808 961-8225

County of Hawai'i Office of Housing &
Community Development

50 Wailuku Drive
Hilo, HI 96720
808 961-8379

Additional Partners:

Notes/Lessons Learned:

Puna CDP Goals 3.6.1

- a. Puna has made significant progress towards achieving energy self-sufficiency by 2020.
- d. There are incentives for the use of renewable energy sources

Puna CDP Objectives 3.6.2

None

Reference Documents:

Reference Documents	Page #
Puna CDP: Action 3.6.3.F	pp. 3-19, 3-20
WG Report – Alternative Energy	all
Working Paper No. 3	pp. 4-5, 18
*Note: reference documents are not limited to the above noted pages.	

MANAGING GROWTH: 3.6 Energy Sustainability



Action 3.6.3.G

Negotiate a direct use of geothermal agreement for agricultural uses as part of any expansion of the capacity of the Puna Geothermal Venture plant.

Action Status:

Timeframe: 2008-2012

Start Date:

Completion Date:

Cost:

Funding Source:

Action Update:

Supportive/Dependent Pre-Actions:

- **Action 3.2.3.M:** Develop job opportunities in Puna in renewable energy generation
- **Action 3.6.3.I (3):** Pursue other applications besides energy capture (e.g., aquaculture and agricultural product washing)

Lead Solution Partner:

HELCO
1200 Kilauea Ave
Hilo, HI 96720
808 969-6999

State of Hawai'i Public Utilities Commission
465 South King Street #103
Honolulu, HI 96813
808 586-2020

Supporting Partners:

County of Hawai'i Research & Development
25 Aupuni Street
Hilo, HI 96720
808 961-8366

Additional Partners:

Notes/Lessons Learned:

Puna CDP Goals 3.6.1

- c. Puna lowers its dependence on fossil fuel as an energy source, becoming a demonstration area for alternative sources, systems and fuels.

Puna CDP Objectives 3.6.2

None

Reference Documents:

Reference Documents	Page #
Puna CDP: Action 3.6.3.G	pp. 3-19, 3-20
WG Report – Alternative Energy	all
Working Paper No. 1	pp. 32-33
Working Paper No. 2	p. 27
Working Paper No. 3	pp. 4-5
*Note: reference documents are not limited to the above noted pages.	

MANAGING GROWTH: 3.6.3 Energy Sustainability



Action 3.6.3.H

Promote biomass energy and fuel production using wood chips from exotic trees

Action Status:

Timeframe: 2008-2030

Start Date:

Completion Date:

Cost:

Funding Source:

Action Update:

Supportive/Dependent Actions:

- **Action 3.2.3.M:** Develop job opportunities in Puna in renewable energy generation

Lead Solution Partner:

State of Hawai'i Public Utilities Commission
465 South King Street #103
Honolulu, HI 96813
808 586-2020

Supporting Partners:

Department of Business, Economic
Development & Tourism
P.O. Box 2359
Honolulu, HI 96813
808 586-2423

County of Hawai'i Department of
Research & Development
25 Aupuni Street
Hilo, HI 96720
808 961-8366

Additional Partners:

Notes/Lessons Learned:

Puna CDP Goals 3.6.1

- a. Puna has made significant progress towards achieving energy self-sufficiency by 2020.
- c. Puna lowers its dependence on fossil fuel as an energy source, becoming a demonstration area for alternative sources, systems and fuels.

Puna CDP Objectives 3.6.2

None

Reference Documents:

Reference Documents	Page #
Puna CDP: Action 3.6.3.H	pp. 3-19, 3-20
WG Report – Alternative Energy	p. 4 (all)
Working Paper No. 1	pp. 32-33
Working Paper No. 2	p. 27
Working Paper No. 3	p. 36
*Note: reference documents are not limited to the above noted pages.	

MANAGING GROWTH: 3.6 Energy Sustainability



Action 3.6.3.I (1)

Pursue the development of new renewable energy sources such as Ocean Thermal Energy Conversion (OTEC), wave-energy generation and solar energy capture as the technology advances to make an investment in such a demonstration and production facility in Puna feasible.

Action Status:

Timeframe: 2013-2030

Start Date:

Completion Date:

Cost:

Funding Source:

Action Update:

Supportive/Dependent Actions:

- **Action 3.2.3.M:** Develop job opportunities in Puna in renewable energy generation.
- **Action 3.6.3.I (2):** Pursue an ocean energy or enterprise subzone.
- **Action 3.6.3.I (3):** Pursue other applications besides energy capture (e.g., aquaculture and agricultural product washing)

Lead Solution Partner:

State of Hawai'i Public Utilities Commission
465 South King Street, #103
Honolulu, HI 96813
808 586-2020

Supporting Partners:

State of Hawai'i Department of Business, County of Hawai'i Department of
Economic Development & Tourism Research & Development
P.O. Box 2359 25 Aupuni Street

Honolulu, HI 96813
808 586-2423

Hilo, HI 96720
808 961-8366

Additional Partners:

Notes/Lessons Learned:

Puna CDP Goals 3.6.1

- a. Puna has made significant progress towards achieving energy self-sufficiency by 2020.
- c. Puna lowers its dependence on fossil fuel as an energy source, becoming a demonstration area for alternative sources, systems and fuels.

Puna CDP Objectives 3.6.2

None

Reference Documents:

Reference Documents	Page #
Puna CDP: Action 3.6.3.I (1)	pp. 3-19, 3-20
WG Report – Alternative Energy	p. 4 (all)
Working Paper No. 1	pp. 32-33
Working Paper No. 3	pp. 16-22
*Note: reference documents are not limited to the above noted pages.	

MANAGING GROWTH: 3.6 Energy Sustainability



Action 3.6.3.I (2)

To facilitate Action 3.6.3.I (1), pursue an ocean energy subzone or enterprise zone designation for a section of coastal land in Puna, preferably on State land, in order to encourage research and production of ocean-based alternative energy systems and facilities.

Action Status:

Timeframe: 2008-2017

Start Date:

Completion Date:

Cost:

Funding Source:

Action Update:

Supportive/Dependent Actions:

- **Action 3.6.3.I (1):** Pursue new renewable energy sources (OTEC, wave energy, solar capture) as technology advances.

Lead Solution Partner:

County of Hawai'i Research and Development
25 Aupuni Street
Hilo, HI 96720
808 961-8366

Supporting Partners:

State of Hawai'i Department of Business, Economic Development & Tourism P.O. Box 2359 Honolulu, HI 96813 808 586-2423	County of Hawai'i Planning Department 101 Pauahi Street, Suite 3 Hilo, HI 96720 808 961-8288
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Additional Partners:

Notes/Lessons Learned:

Puna CDP Goals 3.6.1

- a. Puna has made significant progress towards achieving energy self-sufficiency by 2020.
- c. Puna lowers its dependence on fossil fuel as an energy source, becoming a demonstration area for alternative sources, systems and fuels.

Puna CDP Objectives 3.6.2

None

Reference Documents:

Reference Documents	Page #
Puna CDP: Action 3.6.3.I (2)	pp. 3-19, 3-20
WG Report – Alternative Energy	All
Working Paper No. 1	pp. 32-33
Working Paper No. 3	pp. 16-22
*Note: reference documents are not limited to the above noted pages.	

MANAGING GROWTH: 3.6 Energy Sustainability



Action 3.6.3.I (3)

In addition to energy generation, cold water aquaculture and agricultural processing should be encouraged and accommodated, including refrigerated warehouse and processing facilities, hot-water treatment of agricultural products, and agricultural product washing and packing facilities.

Action Status:

Timeframe: 2013-2030

Start Date:

Completion Date:

Cost:

Funding Source:

Action Update:

Supportive/Dependent Actions:

- **Action 3.6.3.I (1)** Pursue new renewable energy sources (OTEC, wave energy, solar capture) as technology advances.

Lead Solution Partner:

County of Hawai'i Research and Development
25 Aupuni Street
Hilo, HI 96720
808 961-8366

Supporting Partners:

State of Hawai'i Department of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, HI 96813
808 586-2423

Additional Partners:

Notes/Lessons Learned:

Puna CDP Goals 3.6.1

None

Puna CDP Objectives 3.6.2

None

Reference Documents:

Reference Documents	Page #
Puna CDP: Action 3.6.3.I (3)	pp. 3-18 to 3-20
WG Report – Alternative Energy	All
Working Paper No. 1	pp. 32-33
*Note: reference documents are not limited to the above noted pages.	